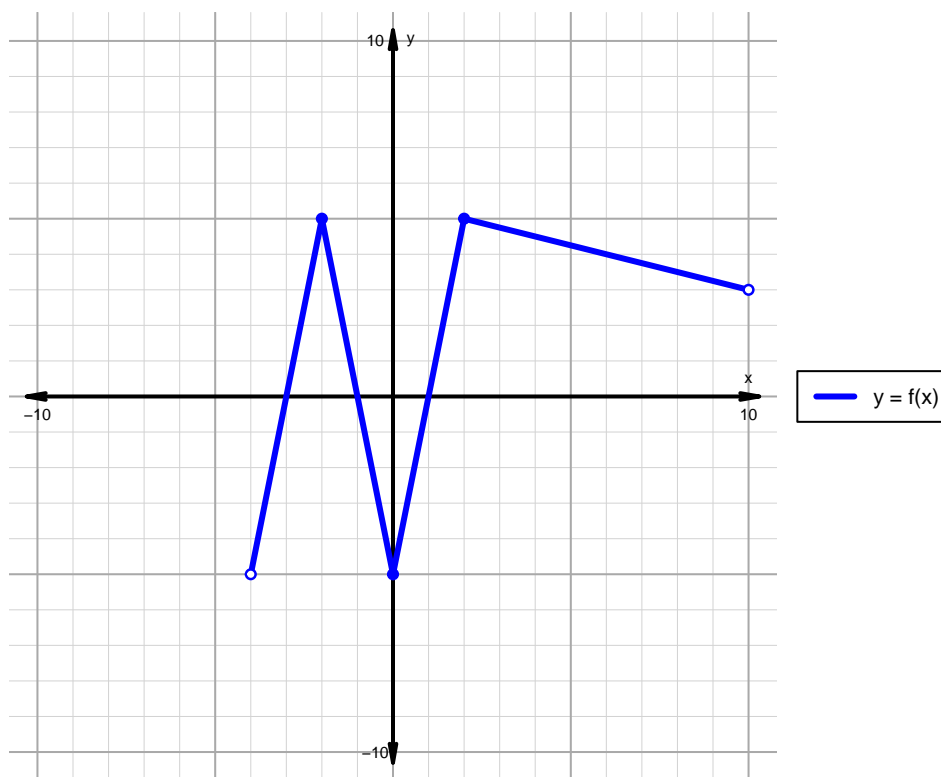Name: _____   Date: _____

Intervals, Transformations, and Slope Solution (version 39)

1. The function f is graphed below.

Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-3, -1) \cup (1, 10)$
Negative	$(-4, -3) \cup (-1, 1)$
Increasing	$(-4, -2) \cup (0, 2)$
Decreasing	$(-2, 0) \cup (2, 10)$
Domain	$(-4, 10)$
Range	$(-5, 5)$

Intervals, Transformations, and Slope Solution (version 39)

2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. Please add the indicated transformed graphs indicated by the equations below using a solid line.

$$y = f(-2 \cdot x)$$

$$y = f(x) - 2$$

$$y = 2 \cdot f(x)$$

$$y = f(x + 2)$$
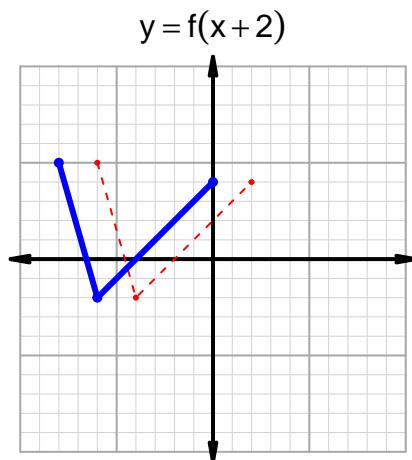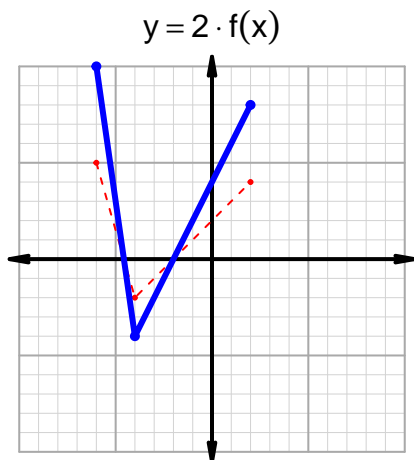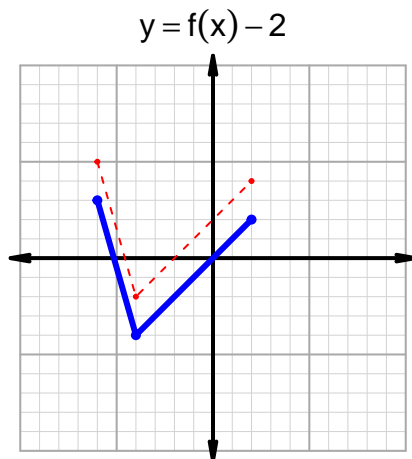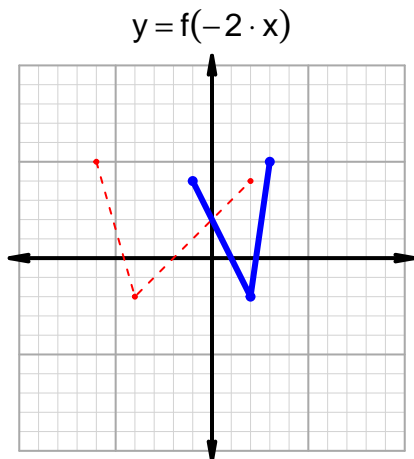
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 33$ and $x_2 = 53$. Express your answer as a reduced fraction.

x	$g(x)$
33	87
53	91
87	53
91	33

$\frac{f(53) - f(33)}{53 - 33} = \frac{91 - 87}{53 - 33} = \frac{4}{20}$

The greatest common factor of 4 and 20 is 4. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{1}{5}$$